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Orcaella brevirostris (Mahakam River subpopulation), Irrawaddy Dolphin

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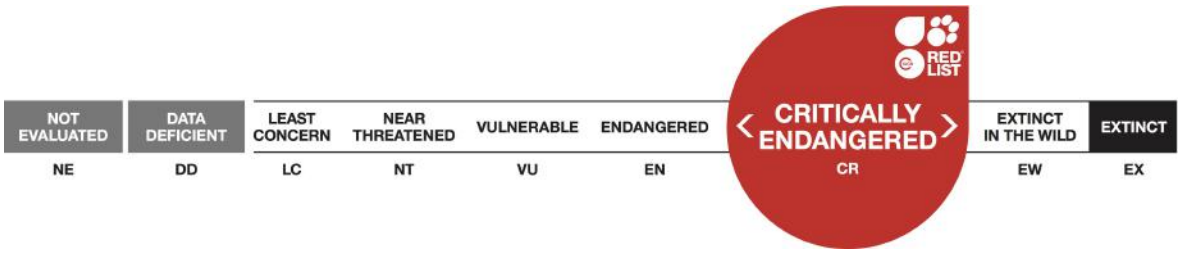

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Cetartiodactyla	Delphinidae

Taxon Name: *Orcaella brevirostris (Mahakam River subpopulation)* (Owen in Gray, 1866)

Parent Species: See *Orcaella brevirostris*

Common Name(s):

- English: Irrawaddy Dolphin, Snubfin Dolphin
- French: Orcelle
- Spanish: Delphín Del Irrawaddy

Taxonomic Notes:

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dolphins do not move farther downstream than about 90 km from the coast, and marine dolphins do not move farther upstream than about 10 km from the coast, and then only at high tide. The Mahakam dolphins also show strong fidelity to specific confluences and there is no evidence to suggest that they make long-distance movements (Kreb *et al*. 2007). Therefore, it is reasonable to consider this an isolated freshwater subpopulation.

Assessment Information

Red List Category & Criteria: Critically Endangered D ver 3.1

Year Published: 2008

Date Assessed: June 30, 2008

Justification:

This subpopulation is considered Critically Endangered D. Using a proxy value of 54% for the mature adult proportion of the total population (based on calculations from the age of first reproduction (8 years), interbirth interval (2.5 years) and oldest age of reproductive females (30 years) in *Sotalia fluviatilis* (see Taylor *et al.* 2007) – a species that lives in similar habitat (i.e., large river) and has similar, but better-known, life history characteristics), there are only 31-42 (total, all ages: 59-79) mature animals in the Mahakam subpopulation of Irrawaddy dolphins. Recent live-captures and ongoing bycatch in fishing gear are the factors likely most responsible for the subpopulation's decline to such small numbers, and these threats still exist (Kreb *et al*. 2007).

Previously Published Red List Assessments

2000 – Critically Endangered (CR)

Geographic Range

Range Description:

The subpopulation of Irrawaddy dolphins in the Mahakam River of East Kalimantan, Indonesia, ranges in the mainstem of the river from about 180 km above the mouth to 600 km upstream, seasonally inclusive of Kedang Kepala, Kedang Rantau, Belayan, Kedang Pahu, and Ratah tributaries, as well as Semayang and Melintang lakes (Kreb 1999, 2004). In the early 1980s, dolphins were still commonly reported in Samarinda, about 60km upstream of the coast, but in the early 1990s they rapidly disappeared and are now observed only upstream of about 180 km from the coast. The apparent 120 km range decline represents a loss of about 15% of their historic range (Kreb *et al.* 2007).

Country Occurrence:

Native: Indonesia (Kalimantan)

FAO Marine Fishing Areas:

Native: Pacific - western central

Population

The most recent (2005) best estimates of total population size varied between 67 and 70 dolphins (CV = 10%; CL = 59-79), based on direct counts and Petersen mark-recapture analyses of photo-identified dolphins, respectively (Kreb *et al.* 2007).

Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)

Significant differences have been recorded among encounter rates of dolphins in the Mahakam for eight 40-km long segments of the river mainstem and tributaries (χ^2 = 35.91, df = 7, P < 0.01). The three segments with the highest rates included particularly large numbers of confluences and appended lakes. Also, the confluence at Muara Pahu and another confluence about 10 km upstream, in the Kedang Pahu tributary, accounted for 89% of the sightings of newborns (N = 9). The majority of deaths (54%) with known location (N = 46) between 1995 and 2005 also occurred in confluences (Kreb *et al*. 2007). The average daily home ranges of 27 groups, which were followed for more than six hours, was 10 km of river length (SD = 8.6, range = 1-45 km). River length ranges were also calculated for 53 photo-identified dolphins during 3.5 consecutive years. Individuals were identified on average 12.5 times (SD = 9.5, range = 2-39) and during 6.2 different survey days (SD = 3.7, range = 2-20). These dolphins moved within the river an average of 61 linear km (SD = 44, range = 4-181) (Kreb *et al*. 2007).

Systems: Freshwater

Threats (see Appendix for additional information)

The main threat to this subpopulation is undoubtedly gillnet entanglement, which accounted for approximately 66% of the 46 deaths documented between 1995 and 2005. Five of these dolphins were eaten by local people, and the skins of two were used as medicine for skin allergy. Dolphins in the Mahakam often are observed feeding in close proximity to gillnets and fishermen use the dolphins' feeding patterns to determine the location and time to set their gillnets. Deliberate kills accounted for 9% of the documented deaths, occurring mostly in isolated areas where the animals were rarely found. Vessel strikes caused 7% of the deaths. Seven percent of the deaths were judged to represent fetal or neonatal mortality, and electro-fishing and hook-fishing each caused 2% of the deaths (Kreb *et al.* 2007). u1:p> /u1:p> From 1974 until 1988, 28 dolphins were live-captured and taken to Jaya Ancol oceanarium in Jakarta. Local people provided detailed accounts of illegal captures in 1997 (three dolphins) and 1998 (four dolphins). The fates and destinations of these animals remain unknown (Kreb *et al.* 2007). The high density of gillnets in Semayang and Melintang lakes physically obstructs dolphin movements, thereby reducing available habitat. This problem, together with high sedimentation caused by de-vegetation of the surrounding shorelines, has probably eliminated these lakes as primary areas of occupancy, as reported by Tas'an and Leatherwood (1984). Leaks of chemical wastes, including mercury and cyanide, from retention dams at gold mines in the upper reaches occurred in 1997 and resulted in a massive fish kill (D. Kreb, pers. comm.). Cleaning waste from coal mines enters the Kedang Pahu tributary during floods, and on two occasions dolphins have been observed there with changes skin pigmentation (Kreb *et al.* 2007). An additional threat is heavy vessel traffic, particularly large coal barges that operate in narrow tributaries and which the dolphins actively avoid (Kreb and Rahadi 2004).

Conservation Actions (see Appendix for additional information)

The Action Plan for the Conservation of Freshwater Populations of Irrawaddy Dolphins (Smith *et al.* 2007; also see Kreb and Budiono 2005) recommended that core conservation zones be established in the Mahakam at key river confluences, including of about 10 km of river in both upstream and downstream directions. The Action Plan also recommended a strict ban on gillnetting in the proposed core conservation zones, to be implemented on a step-wise basis as alternative gears or employment options are provided. Outside the core conservation zones, current regulations prohibiting the use of gillnets with a mesh size of 10 cm or greater should be enforced (Kreb *et al*. 2007 found that most of the documented deaths of Irrawaddy dolphins in the Mahakam were due to entanglement in nets of mesh size 10-18 cm). Additional regulations requiring net attendance and prohibiting nighttime fishing also should be adopted. The use of large coal barges in narrow tributaries needs to be replaced by some form of land transport. Regular patrols are needed to prevent illegal fishing techniques such as electro-fishing, poison, and trawling, and better protection is needed for fish spawning sites in and near areas with high densities of dolphins.

Credits

Assessor(s): Jefferson, T.A., Karczmarski, L., Kreb, D., Laidre, K., O'Corry-Crowe, G., Reeves, R.R., Rojas-Bracho, L., Secchi, E., Slooten, E., Smith, B.D., Wang, J.Y. & Zhou, K.

Reviewer(s): Brownell Jr., R.L. & Cooke, J. (Cetacean Red List Authority)

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External Resources

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Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	-	Suitable	Yes

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
3. Energy production & mining -> 3.2. Mining & quarrying	Ongoing	Minority (50%)	Unknown	Unknown
4. Transportation & service corridors -> 4.3. Shipping lanes	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale)	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.6. Motivation Unknown/Unrecorded	Ongoing	Minority (50%)	Unknown	Unknown
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)	Ongoing	Unknown	Unknown	Unknown
9. Pollution -> 9.2. Industrial & military effluents -> 9.2.2. Seepage from mining	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
11. Climate change & severe weather -> 11.4. Storms & flooding	Ongoing	Unknown	Unknown	Unknown
12. Other options -> 12.1. Other threat	Unknown	Majority (50-90%)	Causing/could cause fluctuations	Unknown

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Systematic monitoring scheme: Yes
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over entire range

http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T39428A10237530.en

Conservation Actions in Place
In-Place Education
Included in international legislation: No
Subject to any international management/trade controls: No

Additional Data Fields

Habitats and Ecology
Movement patterns: Full Migrant

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